NASA Shared Services Center
Pioneers Robotics Process Automation (RPA) For Federal Agencies

NSSC's RPA Implementation Team (left to right) Pinar Moore, Pam Wolfe, Michael Dukes, Lisa Monus, and Farrah Fouquet

NSSC uses bots to shift Federal employees and contractors to more challenging high-value work Since 2006, the NASA Shared Services Center (NSSC) has provided mission-support services to NASA with the goal of reducing resource expenditure, improving the quality and timeliness of service delivery, and providing a positive customer experience. Times and technology have changed, but these goals remain. The NSSC continuously explores opportunities to innovate and improve the delivery of mission-support services.

One such innovation is the introduction into the workforce of digital employees. NSSC's Intelligent Automation Services (IAS) Team is using Robotic Process Automation (RPA) to develop automated work instructions. RPA allows employees to configure computer software—called "bots"—to capture and interpret existing applications for processing transactions, manipulating data, triggering responses, and communicating with other digital systems. RPA software mimics human interaction with computers,

enabling NSSC to automate processes and have digital employees perform them. Bots have supplemented and complemented the work of the NSSC's workforce, freeing up human employees' time for more complex and higher-value tasks.

A digital employee shares several characteristics with human employees. Like human employees, digital employees require user Information Technology (IT) credentials, licenses, access roles, desktop computers or virtual machines, supervisors, and work instructions. Bots replicate human interactions and mimic common tasks such as queries, cut/paste, merging, button clicks, etc. They operate effectively in the user/interface layer and are able to automate rules-based work without compromising underlying IT infrastructure.

Bots never become distracted or tire of doing repetitive work, so mass quantities of work performed by bots have greater reliability than work performed by human employees.
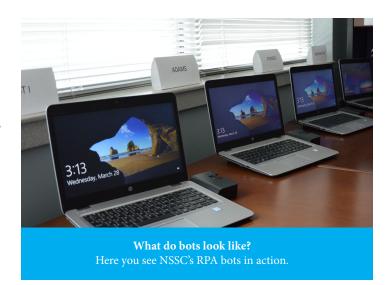
Since its inception twelve years ago, the NSSC has grown to provide over sixty services to NASA spanning the areas of financial management, procurement, human resources, enterprise services, and agency business services. The implementation of RPA supports the NSSC's mission of providing timely, accurate, high-quality, cost-effective, and customer-focused support for selected NASA business and technical services. Because using bots reduces the time humans must spend completing repetitive, mundane tasks, Federal employees and contractors can shift their attention to performing more cognitively challenging and creative work.

Overcoming challenges associated with RPA Implementation

While NSSC recognized the potential efficiencies that RPA offers, there was some initial hesitation to venture into an area where no other Federal agency had gone before. NSSC's journey into RPA was fraught with IT security concerns, but it overcame them. Collaborating with the agency and Chief Information Officer organizations, they addressed challenges with credentials, NASA systems integrations, and internal control procedures.

Additionally, NSSC's management was concerned with how the workforce would react to RPA, and especially with employees' perceptions that they might lose their jobs to bots. Through a series of employee outreach events, NSSC shared its plans for implementing IAS. It created a website to explain IAS and RPA, and invited employees to be a part of this exciting opportunity. Employees were invited to "think 'inside the bot' for a moment and ask ourselves: What repetitive tasks bog us down such that we would like a bot to perform them? How can automation allow for greater productivity? How can we increase performance and improve accuracy and customer service?"

NSSC successfully socialized the workforce to IAS/RPA. And now, employees are offering ideas for work suitable to bots. Thus far in 2018, employees have submitted through an online tool over three-hundred ideas for process innovations and improvements. Some ideas become candidates for bots, while others result in simple process reform. Innovation and continuous improvement are encouraged at all levels of the NSSC

What do bots look like?
Here you see NSSC's RPA bots in action.

organization, with award opportunities for those individuals who submit the best ideas.

NASA was the first agency in the Federal government to implement RPA, and today NSSC has three bots in production, running nine processes. The NSSC's first bot, named Washington, performs funds distribution work for the NSSC.

Washington also performs four processes for procurement, including document imaging, scans files, and creates folders to establish grants packages. A second bot, named Adams, performs funds distribution tasks for the agency. NSSC's third bot, Pioneer, creates procurement requests for the Office of the Chief Information Officer. A fourth bot, Beacon, is planned to go into production in the first quarter of fiscal year 2019. Opportunities for bot utilization span all lines of business at the NSSC.

No NSSC employee has lost a job as a result of successfully implementing RPA. To the contrary, every employee whose previous work is now performed by a bot has been shifted to more challenging work. The NSSC intends to employ more RPA bots in the future to better serve its lines of business, and to enable employees to dedicate more of their time to higher-value work. The results of IAS at NSSC are encouraging, and indicate that RPA implementation can and should expand across agencies. RPA is an affordable, efficient, and effective means to shift Federal resources from low-value to high-value work.

See NSSCs video demonstration of bots in action here.